REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 12-22 are currently pending. Claims 12-22 have been amended by the present amendment. The changes to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, Claims 12-18, 20, and 21 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,380,995 to Udd et al. (hereinafter "the '995 patent"); Claim 22 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the '995 patent; and Claim 19 was rejected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

Amended Claim 12 is directed to a system for measuring the refractive index of at least one medium, comprising: (1) a waveguide comprising at least one transducer formed by a blazed Bragg grating, in a part of the waveguide brought into contact with a medium, wherein the spectral response of the blazed Bragg grating depends on the refractive index of the medium by means of energy coupling between the guided mode and cladding modes and/or a continuum of radiative modes; (2) a light source optically coupled to the waveguide in order to direct light therein and to make the light interact with the grating; (3) spectral analysis means for analyzing the light which has interacted with the blazed Bragg grating and for providing a spectrum corresponding to the grating; (4) acquisition means for recovering the spectrum; and (5) electronic processing means for determining, from the spectrum thus recovered, a value of the refractive index of the medium. The changes to Claim 12 are supported by the originally filed specification and do not add new matter.

Regarding the rejection of Claim 12 as anticipated by the '995 patent, the '995 patent is directed to a sensor system to sense an environmental effect, the system including a light

source; a fiber grating configured to receive a light beam, wherein the fiber grating creates a second light beam from the first light beam whose frequency spectrum depends on the environmental effect; and a first local optical filter configured to receive at least portions of the second light beam to isolate the environmental effect. Further, the '995 patent discloses that the local optical filter is configured to reflect a spectrum having a relatively narrow bandwidth overlapping at least some of the frequency spectrum of the second light beam, so that upon exposure to the second light beam, the first local optical filter creates a light beam whose intensity is representative of the environmental effect.

As shown in Figure 1, the '995 patent discloses a fiber grating 23 indicated by four slanted lines. However, Applicants note that the '995 patent fails to disclose a blazed Bragg grating, as recited in amended Claim 1. In this regard, Applicants note that the text of the '995 patent does not include the word "blazed". In this regard, Applicants note that the Office Action asserts on page 6 of the outstanding Office Action that the '995 patent discloses a blazed Bragg grating simply because the grating lines shown in the Figures of the '995 patent are slanted. In particular, the Office Action notes that U.S. Patent No. 5,638,473 to Byron (hereinafter "the '473 patent") discloses blazed Bragg gratings 3 and 4 illustrated by slanted lines and a conventional Bragg grating 5 shown by vertical lines. However, Applicants respectfully submit that the difference in the grating lines shown in the '473 patent is used to merely indicate that the Bragg grating 5 is a reflective grating. Applicants respectfully submit that the "industry standard" for indicating a blaze Bragg grating is not slanted lines. Rather, slanted lines are used to indicate non-reflective gratings in general. See, e.g., U.S. Patent No. 6,363,180 to Yamate et al. which discloses "gratings 14" indicated by slanted lines. Thus, Applicants respectfully submit that one of ordinary skill in the art would not assume that slanted lines indicate blazed Bragg gratings as opposed to other types of gratings.

Moreover, Applicants respectfully submit that the '995 patent fails to disclose electronic processing means for determining, from a spectrum provided by spectral analysis means, a value of a refractive index of a medium, as recited in amended Claim 12. In this regard, Applicants note that the Office Action refers to the computer calculations at column 11, line 63 to column 12, line 17 of the '995 patent as disclosing this limitation. However, Applicants note that these calculations, which are performed by the numeric processor 364 shown in Figure 21 of the '995 patent, relate to a calculation of the instantaneous temperature T and the strain $\in$ of the grating 300. However, the equations disclosed by the '995 patent are unrelated to determining a value of a refractive index of a medium from a determined spectrum corresponding to a blazed Bragg grating, as recited in amended Claim 12. Rather, Applicants note that the '995 patent discloses the use of a separate Bragg grating that is used as a reference for analyzing the response of a Bragg grating transducer, such that the spectra of the two gratings are correlated. In this regard, Applicants note that nothing in the '995 patent teaches or suggests that the spectral response of the blazed Bragg grating depends on the refractive index of the medium by means of an energy coupling between the guided mode and cladding modes and/or a continuum of radiative modes, as recited in Claim 12.[1]

Accordingly, for the reasons stated above, Applicants respectfully submit that the rejection of Claim 12 (and dependent Claims 13-18, 20, and 21) as anticipated by the '995 patent is rendered moot by the present amendment to Claim 12.

Claim 13, which depends from Claim 12, recites that the electronic processing means includes means for determining lower and upper envelope curves of the normalized recovered spectrum and a normalized area between the curves. Applicants respectfully submit that the '995 patent fails to disclose this limitation. In this regard, Applicants note that the Office

[1] See page 4, lines 9-23; and page 23, line 12 to page 24, line 21 of the specification for a non-limiting description of the differences and advantages of blazed Bragg gratings over conventional Bragg gratings.

Action refers to Figures 8A and 8B and column 7, lines 35-65 in the '995 patent as disclosing this limitation. However, an examination of those sections of the '995 patent reveals that they relate to the overlap of two spectral envelopes due to stressing of the fiber grating 23 or the overlap of spectral envelopes obtained through two different gratings. Thus, the '995 patent does not disclose means for determining lower and upper envelope curves of a spectrum, but relates to the overlap of separate spectrum obtained from different gratings. In this regard, Applicants note that the upper and lower envelope curves recited in Claim 13 are based on the same spectrum. Accordingly, for this additional reason, Applicants respectfully submit that dependent Claim 13 patentably defines over the '995 patent.

Applicants respectfully submit that the rejection of Claim 22 under 35 U.S.C. § 103 is rendered moot by the present amendment to Claim 12.

Thus, it is respectfully submitted that independent Claim 12 (and dependent Claims 13-22) patentably define over the '995 patent.

Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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